

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

Claim 1 (currently amended): An ultrasonic diagnostic apparatus for diagnosing vascular endothelial function, said apparatus comprising:

an ultrasonic transmitter for transmitting ultrasonic transmission waves into tissues of living body;

an ultrasonic receiver for receiving an ultrasonic echo from vascular wall in said tissues of living body, said vascular wall having a thickness;

a phase detector for detecting a phase of said ultrasonic echo;

an arithmetic unit for obtaining thickness change between two arbitrary positions among a plurality of positions within said vascular wall from a phase detection signal determined at said phase detector, and for calculating an elastic modulus of a region including a tunica intima and tunica media of said vascular wall and excluding a tunica adventia of said vascular wall as a function of said thickness change and a blood pressure value; and

at least one of a storage unit or a display unit, said storage unit storing changes over time of said elastic

~~modulus of said vascular wall~~ when artery is avascularized and the avascularization is then stopped, and said display unit displaying changes over time of said elastic modulus ~~of said vascular wall~~ when artery is avascularized and the avascularization is then stopped.

Claim 2 (currently amended): An ultrasonic diagnostic apparatus for diagnosing vascular endothelial function said apparatus comprising:

an ultrasonic transmitter for transmitting ultrasonic transmission waves into tissues of living body;

an ultrasonic receiver for receiving an ultrasonic echo from vascular wall in said tissues of living body, said vascular wall having a thickness;

a phase detector for detecting a phase of said ultrasonic echo;

an arithmetic unit for obtaining positional displacement of a plurality of positions within said vascular wall from a phase detection signal determined at said phase detector, obtaining thickness change between two arbitrary positions among said plurality of positions from a difference between positional changes of said two positions, and calculating an elastic modulus of a region including a tunica intima and tunica media of said vascular wall and excluding a tunica adventia of said

vascular wall as a function of said thickness change and a blood pressure value; and

at least one of a storage unit or a display unit, said storage unit storing changes over time of said elastic modulus ~~of said vascular wall~~ when artery is avascularized and the avascularization is then stopped, and said display unit displaying changes over time of said elastic modulus ~~of said vascular wall~~ when artery is avascularized and the avascularization is then stopped.

Claims 3-4 (Canceled)

Claim 5 (currently amended): An ultrasonic diagnostic method for diagnosing vascular endothelial function by using an ultrasonic diagnostic apparatus, comprising a transmitter/receiver for transmitting and receiving ultrasonic waves, a phase detector for detecting a phase of a received ultrasonic echo, and an arithmetic unit for calculating elastic modulus of vascular wall based on the received ultrasonic echo and obtained through phase detection, wherein said method comprising:

a step (A) of transmitting ultrasonic waves into tissues of living body including vascular wall, and receiving an ultrasonic echo obtained when said ultrasonic

waves is reflected and scattered by said vascular wall,
said vascular wall having a thickness;

a step (B) of detecting a phase of said ultrasonic
echo;

a step (C) of obtaining thickness change between two
arbitrary positions among a plurality of positions within
said vascular wall from a phase detection signal
determined by said phase detector, and calculating an
elastic modulus of a region including a tunica intima and
tunica media of said vascular wall and excluding a tunica
adventia of said vascular wall as a function of said
thickness change and a blood pressure value; and

at least one of a step (D) of storing changes over
time of said elastic modulus ~~of said vascular wall~~ when
avascularizing artery and then avascularization is stopped
or a step (E) of displaying changes over time of said
elastic modulus ~~of said vascular wall~~ when avascularizing
artery and then avascularization is stopped.

Claim 6 (currently amended): An ultrasonic diagnostic
method for diagnosing vascular endothelial function by
using an ultrasonic diagnostic apparatus, comprising a
transmitter/receiver for transmitting and receiving
ultrasonic waves, a phase detector for detecting a phase
of a received ultrasonic echo, and an arithmetic unit for

calculating elastic modulus of vascular wall based on the received ultrasonic echo and obtained through phase detection, wherein said method comprising:

a step (A) of transmitting ultrasonic waves into tissues of living body including vascular wall, and receiving an ultrasonic echo obtained when said ultrasonic waves is reflected and scattered by said vascular wall, said vascular wall having a thickness;

a step (B) of detecting a phase of said ultrasonic echo;

a step (C) of obtaining positional displacement of a plurality of positions within said vascular wall from a phase detection signal determined by said phase detector, obtaining thickness change between two arbitrary positions among said plurality of positions from a difference of positional displacement of said two positions, and of calculating an elastic modulus of a region including a tunica intima and tunica media of said vascular wall and excluding a tunica adventia of said vascular wall as a function of said thickness change and a blood pressure value; and

at least one of a step (D) of storing changes over time of said elastic modulus ~~of said vascular wall~~ when avascularizing artery and then avascularization is stopped or a step (E) of displaying changes over time of said

elastic modulus ~~of said vascular wall~~ when avascularizing
artery and then avascularization is stopped.

Claims 7-12 (Canceled)